DOCUMENT RESUME

ED 235 844 JC 830 006

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TITLE	Modifications in the DACUM Process of Curriculum Development at Daytona Beach Community College.
INSTITUTION	Daytona Beach Community Coll., FL.
PUB DATE	[82]
NOTE	10p.
PUB TYPE	Reports - Descriptive (141)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Community Colleges; *Competency Based Education; *Curriculum Development; *Job Analysis; Job Skills; Occupational Information; *School Business Relationship; *Skill Analysis; Student Evaluation; Two Year Colleges; *Vocational Education
IDENTIFIERS	*DACUM Process

ABSTRACT

The DACUM (Developing a Curriculum) process has helped Daytona Beach Community College (DBCC) resolve several important issues in competency-based instruction. DACUM involves expert workers in defining and describing their jobs. A panel of workers and supervisors identify general areas of competence required in their jobs; specify skills within the competency areas; write and prioritize explicit and accurate skill statements; and reach consensus on the accuracy of the resulting skill chart. The DACUM chart can be used in student evaluations using a rating scale reflecting four levels of performance typically found or demanded in industry. At DBCC, a number of modificatons in the DACUM process have been made to reduce the time involved in chart construction and produce a chart more adaptable to the classroom competency-based instructional mode. These modifications have included: (1) the institution of an orientation session for panelists to introduce competency-based instructional terminology; (2) visits by DACUM coordinators (who are not typically experienced in the occupations under analysis, but have familiarity with curriculum development across occupations) to job sites to help them make appropriate suggestions to facilitate the DACUM process; and (3) the use of DACUM in faculty evaluation and in defining counseling department tasks and job descriptions. (LAL)

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ED235844

MODIFICATIONS IN THE DACUM PROCESS OF CURRICULUM DEVELOPMENT AT DAYTONA BEACH COMMUNITY COLLEGE

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Curriculum development at Daytona Beach Community College has resolved several important issues in competency-based instruction. The difficult problems of (1) insuring that college graduates possess the entry-level skills required by industry and (2) developing a strong industry-education relationship are solved through the use of the DACUM (Developing A CUrriculuM) process. This process has been shown to be a quick and inexpensive approach for designing a competency-based education program.

Created and first used by the Experimental Projects Branch, Canada Department of Regional Economic Expansion, and the General Learning Corporation of New York, DACUM is based on three assumptions: (1) expert workers can define and describe their job more accurately than anyone else; (2) any job can be effectively described in terms of the tasks that successful workers in that occupation perform; and (3) all tasks, in order to be performed correctly, demand certain knowledge and attitudes from workers.

The process requires a panel of expert workers and supervisors in the occupation being analyzed, a qualified coordinator and a recorder. During a period of two to three days, the panel develops a profile chart of the skills required in the occupation. A DACUM chart serves these functions: as a curriculum plan; as a basis for assessing training needs; and as an assessment tool for student achievement.

The Panel. A DACUM panel is usually comprised of six to eight expert workers and two to three supervisors, selected from companies in the local community to represent each of the specialty areas in an occupation. A major reason for the low cost of the DACUM process is that panel members usually contribute their time. Ordinarily, local companies are quite willing to allow employees to participate. Company personnel regard DACUM as an excellent opportunity to provide essential information for the development of an occupational program from which they will recruit future employees. They feel the program's credibility is strengthened by having their own outstanding employees identify the skills which students should master for employment. From the college's perspective, a primary benefit of DACUM is the development of a stronger, more positive relationship with business and industrial establishments in the local community.

The quality of a DACUM chart is determined by several factors: the panel members' technical knowledge and skill, their ability to express themselves, the coordinator's ability to elicit specific, accurate skill statements, the coordinator's ability to deal with conflict and debate and to maintain the group's momentum.

How DACUM Works. The standard DACUM process is outlined below:

1. First, panel members identify the general areas of competence required. For example, on one chart for Diesel Automotive Mechanics, the general areas included "Service and Repair--Cooling and Exhaust Systems," and "Service and Repair--Fuel Systems." These categories are recorded on large cards and posted vertically on a blank wall in full view of the panel.

2. Next, focusing on only one general area at a time, skills required in each of the categories are specified. Each skill statement is recorded on a smaller card and posted to the right of the appropriate general area. Eventually, the general area or category statement, together with the skill statements, form a "competency band" on the chart. It is imperative that each statement be in precise action terms, such as "Detect and diagnose engine faults," which appears in the category "Service and Repair--Engines" on the chart for motor vehicle repair.

3. After the skills required in each category have been identified, panelists make sure that each skill statement is explicit and accurate.

4. Then, skill statements are structured into a priority sequence. Panelists decide which skills are most important for entry-level to the job. The statements are then arranged in the order determined by the panel.

5. Finally, the coordinator solicits the panelists' consensus regarding the accuracy of the chart. They should agree that it correctly reflects the skills required in that occupation.

When a DACUM workshop is over, panel members have produced a graphic profile of the skills required in their work, and inevitably they express satisfaction with the process.

The Rating Scale. The DACUM process focuses on the most readily available method of evaluation: observable behavior. Because most occupations do not have established standards, employers more often use observed behavior for evaluating employees. DACUM looks at the trainees in the same way that industry looks at employees.

Since the objective of occupational training is to provide employees who can satisfy industry's need for performance at work, it makes sense to focus evaluation directly on realistic work situations. Traditional performance evaluation from the point of view of the instructor should be avoided. Instructors should avoid evaluating in a simulated situation with artificial criteria.

The rating scale attached to each DACUM chart has resulted from much development. On the seven-point scale, the description of each level is designed to reflect a level of performance typically found or demanded in industry.

0--Indicates unsatisfactory performance; includes the person who has attempted to learn and can't master the task, as well as the person who has had no chance to learn.

1--Indicates a first level of successful performance; characteristic of a trainee who is able to perform the task, but normally can't achieve it alone and needs much supervision.

2--Indicates a person fairly capable of functioning independently and needs only periodic supervision.

3--Indicates a person at a satisfactory level of performance in each skill.

4(a)--Indicates a person whose peformance in terms of speed and quality of work is better than would be expected at a satisfactory level.

4(b)--Indicates a person with excellent performance, who also has reached a level that enables him/her to solve unique problems in his/her work with initiative and adaptability.

4(c)--Indicates a person in the top level of employment in the occupation; who performs exceptionally well and has the ability to lead.

The chart with student ratings may be used as a student transcript when seeking employment.

Modifications

DBCC has made two modifications in the role of the coordinator in producing a DACUM chart. The coordinator is the focal point of the process, and he or she must be able to make on-the-spot decisions related to the content and structure of the chart. The coordinator must know what questions to ask, and when, so that the chart will be comprehensive and precise. At the same time, the coordinator must be careful not to influence the panelist's contributions.

For this reason, the standard DACUM process has always advocated that the coordinator should not be experienced in the occupations under analysis. It has been advised instead that he/she should be more familiar with curriculum development across occupations, and that contact with the DACUM panel discussing the chart be limited strictly to work periods.

DBCC's two modifications, we think, both speed up this process and enhance the quality of the product. First, because the panel are not teachers, we have instituted an orientation session to competency-based instructional terminology. Our DACUM coordinators provide a list of thirty or forty action verbs to the panel members prior to developing the chart.

This orientation strategy makes each panel member focus his attention better on the precise, behavioral characteristics of the occupation. Less time is, therefore, required for the group to begin producing quality task statements and for chart review at the end of the process.

Second, although we agree that the coordinator does not need expertise in the occupations under analysis, we have found it advisable to send our DACUM coordinator out to job sites prior to developing a chart. Observing the occupation first-hand, the coordinator develops a sufficient knowledge base of the tasks performed to help resolve debates and conflicts among panel members during the process. DBCC's coordinators are instructed not to provide input as a result of this increased familiarity with the occupation, but only to make appropriate, knowledgeable suggestions to facilitate the process.

Another modification we have made in this process is in its use. The standrd DACUM process limits the use of the charts to providing task analysis for specific occupations and curriculum

development. We have found it useful in two non-technical areas thus far--developing faculty competencies for DBCC's new integrated evaluation system, and in defining tasks and job descriptions for our Counseling Department staff. It should be noted that faculty and counselors who participated in the development of these two charts found their experience to be not only rewarding, but also extremely satisfying.

DBCC's DACUM process, we believe, is even better. As a result of these modifications, we have reduced the time involved in chart construction, and the chart itself is more adaptable to the classroom competency-based instructional mode. Curriculum development using our modified DACUM process is still an exciting and enriching experience for DBCC faculty and industry alike.

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NOV 18 1983